

PREDOMINANT URBAN DESIGN FOR TYPES OF PEDESTRIAN SPACE ZONES IN HISTORICAL AND NON-HISTORICAL AREAS

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ABSTRACT

In urban settings, public spaces are vital for improving quality of life and deserve scholarly and professional attention. Identifying key pedestrian commercial streets is essential for sustainable urban planning in Malaysian cities. In Malaysia, the disregard for townscape quality has contributed to the erosion of character and identity in many cities. To tackle these issues, it is essential to analyse pedestrian zone patterns, identify obstacles to sustainable townscape development, and establish policies that encourage pedestrian-friendly designs. This study explores the predominant types of pedestrian commercial streets in Malaysia's historical and non-historical areas, focusing on their unique characteristics and challenges. This exploration helps in understanding the specific needs and potential improvements required for these zones to enhance a sustainable urban environment. This study explores Malaysia's pedestrian zones to understand their unique characteristics and challenges. The qualitative comparative analysis (QCA) method is employed in this research. Five (5) diverse sites: Sungai Segget Johor Bahru, Melaka Jonker Street, Bukit Bintang Kuala Lumpur, Ipoh Street Art, and Penang Street Art are conducted. This study identifies and compares different types of pedestrian zones in Malaysia's historical and non-historical areas. Historical areas like Melaka, Ipoh and Penang are predominantly represented in semi-mall spaces concept, balancing heritage preservation with modern urban functionality. In contrast, non-historical areas like Bukit Bintang in Kuala Lumpur can



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implement more flexible and modern urban design. Full mall spaces like Sungai Segget prioritise pedestrian safety and cultural activities, while transit mall spaces like Bukit Bintang in Kuala Lumpur integrate transit routes with pedestrian walkways, promoting sustainable mobility and economic vitality. The study provides valuable insights into the design and functionality of pedestrian zones in different urban contexts, contributing to a deeper understanding of urban design practices, especially in historical and non-historical contexts. The findings can inform the policymakers to emphasize the balance between historical and non-historical areas. This study suggests further exploring innovative urban design strategies that can be applied to both historical and non-historical areas to enhance pedestrian experiences.

Keywords: *Urban design, Predominant, Pedestrian space zone, Historical, non-historical*

INTRODUCTION

Public spaces are essential to enhancing the quality of life in an urban area and require professional and academic attention (Duivenvoorden et al., 2021). United Nations Habitat (2017) considered that high-quality public space's contribution includes the economy, health, well-being, social cohesion, and biodiversity. Public space development should create liveable, high-quality environments that support the well-being and mental health of the community (Hamzah et al., 2024). The pedestrian zone is an area that prohibits vehicles or restricts vehicle paths for pedestrian purposes (Şişman 2013). Urban development is often ad hoc and lacks a cohesive plan, resulting in fragmented pedestrian zones (Duffy, 2020). Pedestrian zones are sometimes poorly integrated with other modes of transportation, leading to disconnected urban spaces (Kim, 2015).

Therefore, it is important to explore the main types of pedestrian zones in Malaysia's historical and non-historical areas due to the distinct challenges and characteristics each type presents. This exploration helps in understanding the specific needs and potential improvements required for these zones to enhance urban liveability, safety, and economic vitality. In historical areas like Melaka Jonker Street and Penang Street Art, there is a

need to balance heritage preservation with modern urban functionality. The design must respect historical aesthetics while integrating contemporary and new constructions (Kamali Tabrizi & Abdelmonem, 2024). The indispensability of taking urban aesthetics into account while planning an urban area (Nia & Olugbenga, 2020).

Non-historical areas like Bukit Bintang in Kuala Lumpur can implement more flexible and modern urban designs but often lack the cultural and historical context that attracts pedestrians (Zakariya et al., 2017). Non-historical areas can better integrate pedestrian zones with other urban elements, including public transportation and commercial areas, enhancing overall connectivity. For cities to be more resilient and sustainable over the long run, pedestrianisation is essential (Brownrigg-Gleeson et al., 2023). Non-historical areas often have better safety measures due to modern planning standards but still face challenges such as pedestrian-vehicle conflicts (Shamsuddin et al., 2012). In addition, non-historical areas have more flexibility to incorporate universal design principles, improving accessibility for all users. Pedestrian pathways in historical areas are often fragmented and poorly connected to other parts of the city, affecting ease of movement (Zakariya et al., 2017).

Recent studies on urban design in Malaysia have highlighted the need for a new systems paradigm in urban development. The Malaysian government has recalibrated its spatial policies, focusing on enhancing urban competitiveness while adhering to ambitions of urban liveability, inclusiveness, sustainability, and resilience (Van Grunsven & Benson, 2020). Additionally, a comparative study of smart city initiatives in Malaysia, such as those in Putrajaya and Iskandar Puteri, has shown the importance of integrating technology and urban planning to create more resilient and sustainable urban environments (Samsudin et al., 2022).

Contrasting perspectives on urban design in Malaysia emphasize the need for better urban design to achieve long-term environmental, social, and economic benefits. Poor urban design can lead to significant costs, while good design creates places where people want to live, work, and spend their leisure time (Othman et al., 2022). The George Town Action Plan (GTAP) aims to balance heritage preservation with future development, highlighting the importance of structured urban interventions (Lee et al., 2008).

To effectively plan for sustainable urban environments in Malaysian cities, it is crucial to identify and understand the predominant types of pedestrian commercial streets. Balancing modern development with heritage conservation is crucial. In cities like George Town and Melaka, traditional streets with distinctive landscape features define the townscape's character strategies (Nor Haslina et al., 2018). To preserve these elements while enhancing pedestrianization, it is essential to analyse pedestrian zone patterns and incorporate them into well-structured planning strategies (Nor Haslina et al., 2018). Effective urban interventions require supportive policies and planning frameworks. In Malaysia, the disregard for townscape quality has contributed to the erosion of character and identity in many cities (Sonet & Shahrudin, 2024). To tackle these issues, it is essential to analyse pedestrian zone patterns, identify obstacles to sustainable townscape development, and establish policies that encourage pedestrian-friendly designs (Sonet & Shahrudin, 2024).

This study explores the predominant types of pedestrian commercial streets in Malaysia's historical and non-historical areas, focusing on their unique characteristics and challenges. This exploration helps in understanding the specific needs and potential improvements required for these zones. The study identifies and compares different types of pedestrian zones in Malaysia's historical and non-historical areas, providing valuable insights into urban design practices. However, the paper could benefit from a more explicit discussion of the specific research gap it addresses.

PEDESTRIAN ZONES IN PUBLIC SPACE

According to Şişman (2013), a pedestrian zone is an area that prohibits or restricts vehicles paths for pedestrian purposes. A pedestrian zone known as a pedestrianized street, or car-free zone, is a specific type of public space that is primarily designed for pedestrian use (Lah, 2018). These streets are typically closed off or restricted to vehicle traffic, allowing pedestrians to have priority, and creating a safer and more pleasant environment for walking and socializing (Distefano & Leonardi, 2023).

According to Iranmanesh Nasim (2008), pedestrian streets are divided into three categories, which are full mall pedestrians, semi mall pedestrians

and transit mall pedestrians. The design for full pedestrians allows only emergency vehicles to enter the area (Iranmanesh Nasim, 2008). Most of the study areas prohibit vehicles from entering the area, and usually the service is behind. Semi-pedestrians are where vehicles are only allowed to enter during a certain period (Iranmanesh Nasim, 2008).

In this study, the researchers used the pedestrian zones mentioned by Rubenstein (1992) and Şişman (2013) as a full mall, semi-mall and transit mall. Pedestrian streets are designed to prioritize human scale and comfort, incorporating elements such as wide sidewalks, street furniture, greenery, and adequate lighting (Gehl, 2011). Jan Gehl's studies on cities like Copenhagen and Melbourne demonstrate how pedestrian streets can revitalize urban areas by reducing traffic congestion and pollution while enhancing the quality of public spaces (Gehl, 2011).

The transformation of New York City's Times Square into a pedestrian plaza has shown significant increases in foot traffic and local business revenues, highlighting the economic benefits of pedestrianization (Sadik Khan Janette & Solomonow Seth, 2017). Pedestrian zones recorded the highest spending per visitor in retail and hospitality, highlighting their advantages in revitalized city centres (Dyason et al., 2024).

THEORY RELATED TO PEDESTRIAN STREET

There are several theories related to pedestrian streets, such as new urbanism, the theory of place and placemaking, Jane Jacobs' principles, liveability theories, and human behaviour. These theories collectively emphasize the multifaceted benefits of pedestrian streets, including enhanced social interaction, economic vitality, environmental sustainability, and improved public health. Therefore, the applicable theory to use related to pedestrian streets in this study is Gehl's Theory of Human-Centered Urban Design. Gehl has significantly influenced contemporary urban design with his focus on creating public spaces that prioritize human experience and well-being (Urban Design Lab, 2024). Gehl emphasizes the importance of "life between buildings," meaning the social interactions and activities that occur in public spaces (Jan Gehl, 2011). Designing spaces at a human scale is essential for pedestrian streets (Jan Gehl, 2011). The pedestrian-friendly

design contributes to more sustainable and livable cities (Yassin, 2019).

Cities such as Copenhagen, Melbourne, and New York have implemented Gehl's principles, resulting in vibrant, pedestrian-friendly urban areas that attract both residents and tourists (Urban Design Lab, 2024). Human-Centered Urban Design provides a comprehensive framework for understanding and implementing pedestrian streets. By focusing on human needs and experiences, this theory helps create urban environments that are socially, economically, and environmentally sustainable (Musselwhite, 2020). Gehl's emphasis on life between buildings, human scale, and quality public spaces makes his theory particularly relevant for the design and success of pedestrian streets (Urban Design Lab, 2024).

METHODOLOGY

Study Area

The study consists of five study areas including historical and non-historical areas such as Sungai Segget Johor Bahru, Melaka Jonker Street, Bukit Bintang Kuala Lumpur, Ipoh Street Art and Penang Street Art. The chosen study areas are located in major urban centers across Malaysia, as shown in Figure 1, providing a diverse representation of the country's urban landscape. The second selection is based on the top public spaces in the urban context, which are areas recognized as prominent public spaces, significant in the context of urban public life, attracting both locals and tourists.

Research Design

This study is structured into five stages, each outlining specific tasks and processes (Refer to Figure 2). The study begins with defining the research problem, which involves identifying the central question that guides the investigation. Subsequently, the objectives and goals of the research were established. The scope is then determined, focusing on urban design practices related to pedestrian zones, categorized into three types: full mall space, semi-mall space, and transit mall space, in both historical and non-historical areas.

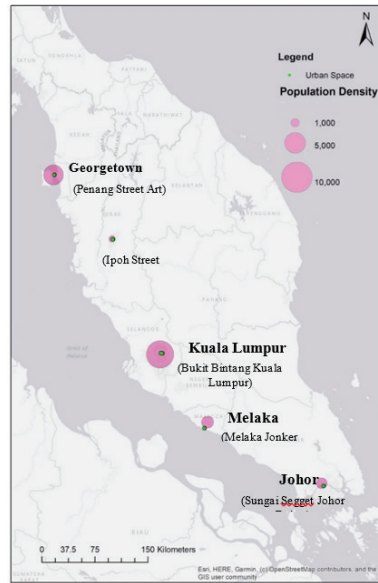


Figure 1. Study Area

Source: Author, 2025

In the second stage, study areas are selected across major Malaysian cities in the northern, central, and southern regions. The top of public space is considered for the selection of study. The research specifically focuses on public spaces along streets, excluding parks, playgrounds, and other open spaces. This study also considered public space for pedestrian-oriented commercial streets. The identified locations include Sungai Segget (Johor Bahru), Jonker Street (Melaka), Bukit Bintang (Kuala Lumpur), Ipoh Street Art (Ipoh), and Penang Street Art (Penang).

The third stage involves data collection and analysis methods, where a qualitative approach using site observations is employed. A comparative analysis technique is used to assess various parameters such as pedestrian zone types, historical versus non-historical areas, and their respective advantages and disadvantages. The specific methods used for comparative analysis in this study include site observation, typological classification, parameter-based comparison, pattern identification and qualitative comparative analysis (QCA). Site observation direct field observation of pedestrian commercial streets to document. The typological classification is categorized by pedestrian streets based on predefined urban design parameters. Evaluating and comparing streets based on key factors for

parameter-based comparison, such as location context (historical vs. non-historical), and pedestrian flow. Analyse the pattern identification and commonalities among different sites to determine predominant urban design characteristics. Last is using structured qualitative assessment to highlight differences and similarities in urban form, usage and spatial impact.

The data collection was conducted in December 2023, with field observations scheduled as follows: Week 1 – Penang, Week 2 – Ipoh and Kuala Lumpur, Week 3 – Melaka, and Week 4 – Johor Bahru. This study utilized standardized observation sheets and tools to ensure systematic and consistent data collection across various pedestrian commercial streets. The structured observation sheets included key aspects such as street type classification, pedestrian flow and design, accessibility, and connectivity. Additionally, mapping tools were employed to identify and locate the study areas, while photography was used to capture visual evidence of site conditions. Sketching was also incorporated to document and classify different street types, providing a clearer understanding of the spatial characteristics and urban design patterns observed in the study.

To supplement the observation sheets, spatial mapping techniques were used to document street layouts, while photography and video recordings provided visual evidence for further analysis. This study also incorporated sketching as a method for classifying street types, providing a visual representation of spatial layouts and pedestrian commercial street characteristics. Sketching was used to document the physical structure of streets. By visually mapping full-mall, semi-mall, and transit-mall spaces, sketching helped identify the spatial organization and interaction between pedestrian zones and commercial activities. This method complemented standardized observation sheets and spatial mapping tools, ensuring a more comprehensive understanding of urban design patterns in both historical and non-historical areas. The combination of sketching and structured observation allowed for a clearer classification of pedestrian street types and their functional roles in different urban settings.

In the fourth stage, the collected data is analysed through comparative techniques to identify the unique characteristics and challenges of pedestrian zones in Malaysia's historical and non-historical urban areas. The final stage focuses on findings, conclusions, and recommendations. The results

are summarised, and interpreted in relation to the research objectives, and their implications for urban design and pedestrian zone development are discussed. Finally, recommendations for future research and practical applications are provided.

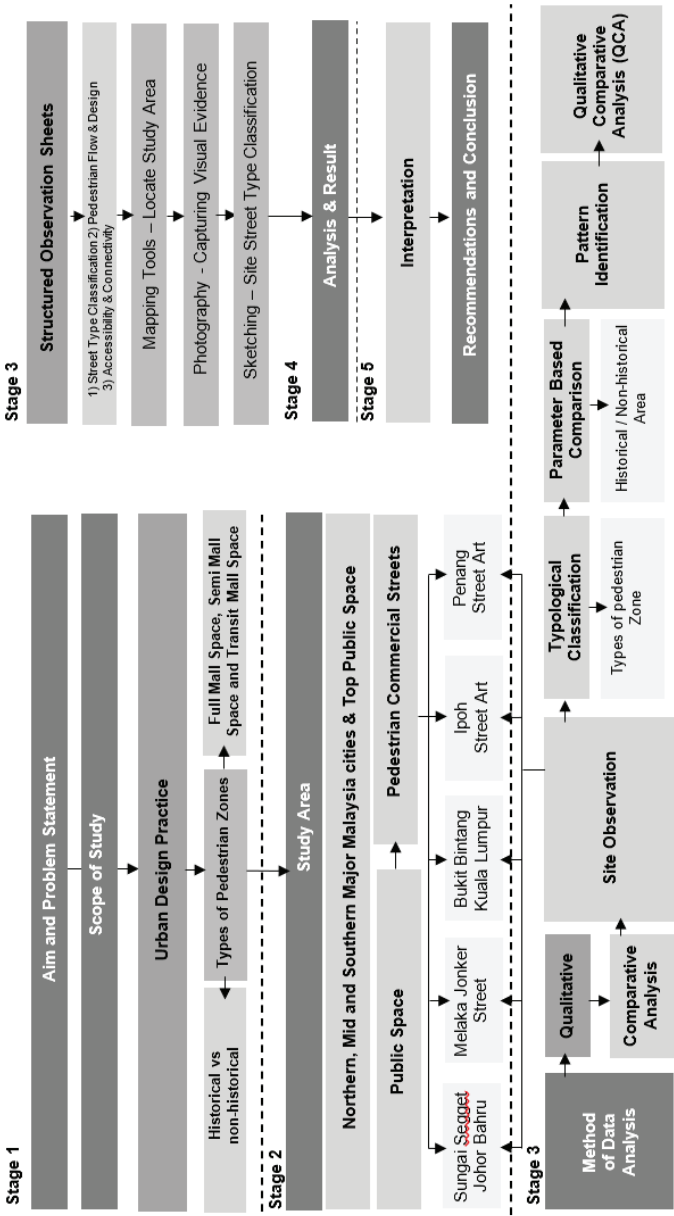


Figure 2. Overall Research Framework

Source: Author, 2025

RESULTS AND DISCUSSION

Table 1 describes the comparison areas such as historical and non-historical areas with types of pedestrian zones. Each type reflects local urban planning priorities and the unique characteristics of the area, catering to both residents and visitors alike. Sungai Segget in Johor Bahru represents a significant urban revitalization effort aimed at transforming the city centre into a vibrant pedestrian-centric zone. The designation of mix shows that Sungai Segget accommodates a blend of uses, likely combining historical preservation efforts with contemporary urban planning goals. This approach often seeks to balance modern amenities and accessibility with the preservation of cultural heritage if applicable. While the specific historical significance of Sungai Segget isn't detailed, the initiative typically involves urban areas with a blend of historical and modern elements. This could include revitalizing older districts or integrating historical landmarks with new urban amenities.

Sungai Segget is proposed as a Full Mall Space, indicating a zone exclusively dedicated to pedestrian use. This designation is pivotal as it completely prohibits vehicular access within the designated areas. Such zones are designed to prioritize pedestrians, creating safe and inviting spaces and safety concerns associated with vehicular traffic. Sungai Segget's design focuses solely on pedestrian streets, meaning vehicles are entirely excluded from these areas. This creates a pedestrian-friendly environment where people can walk, gather, and engage with the surroundings without the disruptions caused by cars or motorcycles. The deliberate separation from motorized streets ensures that pedestrians can navigate the area safely. This separation not only enhances safety but also contributes to a more pleasant and relaxed atmosphere conducive to strolls and outdoor activities.

By prioritizing pedestrians, Sungai Segget aims to encourage increased foot traffic, thereby potentially boosting local business activities and cultural engagements. Pedestrian zones often attract cultural events, fostering a lively urban atmosphere that benefits visitors. The transformation of Sungai Segget into a pedestrian-friendly zone is likely to stimulate economic activities by attracting businesses that cater to pedestrian traffic. Additionally, it provides opportunities for cultural events and showcases local heritage, contributing to the city's cultural vibrancy and tourism appeal. This initiative not only enhances safety and accessibility but also fosters economic growth and

cultural vitality by positioning Johor Bahru as a more attractive and livable city centre.

Meanwhile, Melaka Jonker Street allows controlled vehicular access, ensuring that vehicles do not overwhelm the pedestrian environment. Traffic on Jonker Street is typically managed with one-lane access or one-way traffic arrangements. This helps maintain pedestrian safety and convenience while allowing necessary vehicular movement. The design reflects a compromise between preserving Jonker Street's historical charm and accommodating modern accessibility needs. Pedestrians are given priority, but vehicles are allowed to navigate through the area, albeit under strict regulations to minimize disruption. Jonker Street is a culturally significant area in Melaka known for its heritage buildings, vibrant street markets, and local cuisine. The layout encourages visitors to explore on foot, interact with local businesses, and immerse themselves in the area's rich historical and cultural ambience.

In addition, Ipoh Street Art zones also allow limited vehicular access. Traffic arrangements are designed to harmonize with pedestrian movements, ensuring safety and convenience for pedestrians exploring the street art. Ipoh's street art zones are characterized by their vibrant murals and artistic installations, which often depict local culture, history, and community stories. The design prioritizes pedestrian safety, making it easy for visitors to navigate and enjoy the artistic expressions while maintaining a pedestrian-friendly environment. Penang Street Art zones also permit controlled vehicular access. Traffic management ensures pedestrian safety and convenience while allowing necessary vehicle movements. Penang's street art zones are famous for their creative murals and installations, which often reflect local history, traditions, and contemporary issues. These areas attract a diverse crowd, drawn by the opportunity to explore street art while enjoying a pedestrian-friendly environment that supports strolls and cultural exploration.

These semi-mall spaces in Melaka Jonker Street, Ipoh Street Art, and Penang Street Art exemplify successful urban planning strategies that balance historical preservation, modern accessibility, and cultural vibrancy. By allowing controlled vehicular access and prioritizing pedestrian needs, where heritage conservation, artistic expression, and urban mobility

intersect. They serve as cultural hubs that stimulate economic activity, attract tourism, and foster community engagement through their unique blend of history, art, and pedestrian-friendly design. These zones not only enhance the quality of urban life but also preserve and showcase local cultural identities, making them integral parts of their respective cities' cultural landscapes.

Unlike the previous examples discussed (which are semi-mall spaces allowing controlled vehicular access), Bukit Bintang does not primarily restrict vehicular access. This means that vehicles can freely traverse the area.. Bukit Bintang is designed to accommodate both pedestrians and public transit (such as buses and possibly light rail systems). The emphasis is on creating efficient transit routes alongside pedestrian walkways. The area typically features more extensive and possibly complex traffic arrangements. This includes managing two-way traffic lanes to facilitate the flow of both transit vehicles and pedestrians. Such arrangements are necessary in bustling commercial districts to maintain order and safety amidst high pedestrian and vehicular traffic volumes.

Located in a vibrant commercial district like Bukit Bintang in Kuala Lumpur, this type of zone aims to balance pedestrian accessibility with the needs of public transportation users and vehicular traffic. It serves as a crucial hub for shopping, dining, entertainment, and cultural activities, attracting both locals and tourists alike. Bukit Bintang integrates public transit services with pedestrian walkways, ensuring that people can move efficiently through the area while supporting sustainable transportation options. The design of Bukit Bintang reflects urban planning efforts to create a vibrant, accessible, and sustainable urban environment. It aims to cater to diverse user needs while enhancing the overall quality of urban life in Kuala Lumpur. Bukit Bintang in Kuala Lumpur represents a dynamic example of urban planning that balances the needs of pedestrians, public transit users, and vehicular traffic in a bustling commercial district. Its transit mall space designation underscores its role as a multifunctional area that supports economic vitality, cultural richness, and efficient urban mobility.

This result shows that most of the historical areas are represented in the semi-mall space, such as Melaka Jonker Street, Ipoh Art Street Wall and Penang Street Art. Therefore, Sungai Segget is a blend of historical buildings and new modern structures with full mall space and Bukit Bintang

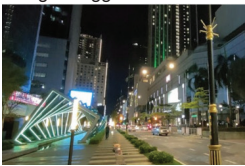
Kuala Lumpur as a transit mall space. Historical areas like Melaka, Ipoh, and Penang are predominantly represented in semi-mall spaces, balancing heritage preservation with modern urban functionality. These zones attract tourists and support local economies through cultural tourism and vibrant street life. Sungai Segget Johor Bahru, with its full mall space concept, aims to enhance pedestrian safety and cultural activities. Bukit Bintang Kuala Lumpur, as a transit mall space, exemplifies a complex urban environment that integrates transit efficiency with commercial vibrancy, catering to diverse urban demands. Each type of pedestrian zone reflects unique urban planning approaches tailored to local contexts, balancing historical preservation, economic activity, and urban mobility. These zones contribute to enhancing the quality of urban life, attracting visitors, and preserving cultural heritage in dynamic and evolving cities.

Each type of pedestrian zone offers distinct advantages and challenges based on its design and location. Full mall spaces like Sungai Segget prioritize safety and a tranquil environment but may limit accessibility and connectivity. Semi-mall spaces such as Melaka Jonker Street, Ipoh Street Art, and Penang Street Art strike a balance between preserving cultural heritage and accommodating modern urban needs, attracting tourists and supporting local economies. Transit mall spaces like Bukit Bintang in Kuala Lumpur integrate transit routes with pedestrian walkways, promoting sustainable mobility and economic vitality but requiring complex traffic management. Each type contributes uniquely to the urban fabric, reflecting diverse approaches to urban planning and design.

Table 2 shows the comparison area historical and non-historical areas with types of pedestrian zones based on advantages and disadvantages. Each type of pedestrian zone offers a unique set of advantages and disadvantages. Full mall spaces like Sungai Segget Johor Bahru provide a safe, vehicle-free environment ideal for high pedestrian traffic but may face accessibility and logistical challenges. Semi-mall spaces, as seen in Melaka Jonker Street, Ipoh Street Art, and Penang Street Art, offer a balance between pedestrian and vehicle access but come with potential safety risks and traffic conflicts. Urban planners must consider these factors to create effective and vibrant pedestrian spaces. Bukit Bintang in Kuala Lumpur stands out as a transit mall space, integrating public transit options with commercial vitality but navigating complexities in traffic management and potential congestion.

Overall, while these pedestrian zones contribute positively to urban vibrancy and local economies, they also require careful planning to manage traffic flow, maintain cultural assets, and ensure a pleasant pedestrian experience.

Table 1.Comparison Area Historical Area and Types of Pedestrian Zones

No.	Area	Historical Area/Non-Historical Area	Types of Pedestrian Zones
1.	Sungai Segget Johor Bahru 	Mix	 Full Mall Space •Propose only for pedestrian streets. •Separate from the pedestrian streets and motorized streets. •Do not allow for any vehicles in the spaces. •Extensive pedestrian use.
2.	Melaka Jonker Street 	Yes	 Semi Mall Space •Limited vehicles are allowed. •Allow one-lane access/one-way traffic access. •Shared space between the pedestrian streets and motorized streets.

3.	Ipoh Street Art 	Yes	 A Street/Pedestrian B Shop lot Semi Mall Space • Limited vehicles are allowed. • Allow one-lane access/one-way traffic access. • Shared space between the pedestrian streets and motorised streets.
4	Penang Street Art 	Yes	 A Street/Pedestrian B Shop lot Semi Mall Space • Limited vehicles are allowed. • Allow one-lane access/one-way traffic access. • Shared space between the pedestrian streets and motorised streets.
4	Bukit Bintang Kuala Lumpur 	No	 A Pedestrian place B Street C Pedestrian Crossing D Bike lane E Pedestrian F Commercial/shop lot Transit Mall Space • Accommodate the use of pedestrians and transit. • Two-way lane access / more than one-way traffic lane access.

Notes: The illustration provided by the author is based on the current pedestrian zones in the areas.
Source: Adapted from Şişman (2013)

Table 2. Comparison Area Historical and Non-historical Areas with Types of Pedestrian Zones

No.	Area	Types of Pedestrian Zones	Advantages	Disadvantages
1.	Sungai Segget Johor Bahru	Full Mall Space	•Exclusively for pedestrians: Enhances safety and convenience by eliminating vehicular traffic. •Promotes pedestrian activity: Creates a pleasant environment for walking, potentially boosting local businesses and cultural activities.	•Accessibility: The lack of vehicle access might limit the convenience for those who rely on cars, including elderly or disabled individuals who may find it difficult to reach the area. •Logistics and Deliveries: Businesses in the side area might face challenges with logistics and deliveries since vehicles are not allowed.
2.	Melaka Jonker Street	Semi Mall Space	•Cultural heritage preservation: Balances historical preservation with modern accessibility needs. •Artistic and cultural appeal: Enhances the urban environment with creative expressions. •Shared space: Allows controlled vehicular access, maintaining vibrancy. •Tourism and local economy: Attracts visitors to its vibrant street life, benefiting local businesses. •Tourist attraction: Draws visitors interested in street art, contributing to the local economy and cultural diversity. •Limited Vehicles Allowed: This provides a balance between pedestrian and vehicular access, allowing for deliveries and easy access for emergency vehicles.	•Traffic management challenges: Balancing pedestrian and vehicular flows can be complex, especially during peak tourist seasons. •Traffic Management: Managing one-lane, one-way traffic requires careful planning and enforcement to prevent congestion and ensure smooth traffic flow. •Traffic Conflicts: The potential for conflicts between pedestrians and vehicles exists, which can be challenging to manage. •Noise and pollution: Limited vehicle access may not eliminate these issues, affecting the pedestrian experience.
3.	Ipoh Street Art	Semi Mall Space		
4.	Penang Street Art	Semi Mall Space		

5	Bukit Bintang Kuala Lumpur	Transit Mall Space	•Integrated transit options: Accommodates both pedestrians and public transit users, supporting sustainable mobility. •Commercial vitality: Located in a bustling commercial district, fostering economic activity and cultural vibrancy. •Flexibility: Allows for more complex traffic management to handle diverse urban demands.	•Traffic complexity: Managing both pedestrian and transit flows alongside vehicular traffic can be challenging. •Potential congestion: Balancing the needs of different user groups may lead to congestion or inefficiencies.
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Source: Author, 2025

CONCLUSIONS

In conclusion, the city has implemented human-centred urban design by Gehl's principles, resulting in a vibrant, pedestrian-friendly urban area that attracts both residents and tourists. Historical areas like Melaka, Ipoh, and Penang are predominantly represented in semi-mall spaces. The findings of this study align with and expand upon previous research in the field of urban design pedestrian zones. For instance, the identification of semi-mall spaces in historical areas such as Melaka Jonker Street, Ipoh Street Art, and Penang Street Art supports the conclusion drawn by Sisman (2013) and Rubenstein (1992) regarding the balance between heritage preservation and modern functionality. These areas successfully integrate cultural heritage with contemporary urban needs, attractive tourists and support local economies.

Moreover, the study's insights into the full mall space concept at Sungai Segget Johor Bahru and the transit mall space at Bukit Bintang, Kuala Lumpur contribute to the existing body of knowledge by providing practical examples of how pedestrian zones can enhance urban liveability and economic vitality. This aligns with Gehl's Theory of Human-Centered Urban Design, which emphasizes the importance of creating public spaces that prioritize human experience and well-being. By comparing the findings with theoretical insights, this study highlights the unique contributions of different types of pedestrian zones to urban design practices. The results demonstrate how historical areas can balance heritage preservation with modern functionality, while non-historical areas can leverage flexible and innovative urban design strategies to create dynamic and pedestrian-friendly

environments. This comparative analysis underscores the importance of context-specific approaches in urban planning and provides valuable insights for policymakers and urban designers aiming to enhance pedestrian zones in diverse urban settings.

This comprehensive approach to studying pedestrian zones in historical versus non-historical areas aims to provide valuable insights into effective urban design practices that respect cultural heritage while promoting modern urban living. The findings can inform the policymakers to emphasize the balance between historical and non-historical areas. The key consideration for balancing heritage and urban functionality through adaptive reuse of heritage buildings, zoning and planning regulations, sustainable infrastructure integration, community and stakeholder engagement, and supporting local businesses that align with the historical and cultural essence of the area.

This study suggests that future research explore innovative urban design strategies that can be applied to improve the pedestrian experience in both historical and non-historical areas. Highlighting the importance of preserving historical elements in urban design and ensuring that cultural heritage is respected and maintained. The limitation of this study is its focus on specific historical and non-historical areas, which may not fully represent all urban environments. Additionally, factors such as economic constraints, government policies, and varying urban development regulations were not extensively analysed, which could influence pedestrian-friendly urban design.

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AUTHOR CONTRIBUTIONS

All authors contributed substantially to the conception and design of the

study, data collection, analysis, and interpretation of results. Each author participated in drafting the manuscript, revising it critically for important intellectual content, and approving the final version for publication. All authors agree to be accountable for all aspects of the work and ensure that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

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